

University of California at Berkeley
Northern California Education and Research Center for Occupational Safety and Health
Annual Program Highlights
Reporting Period: July 1, 2012 – June 30, 2013
Principle Investigator: David Rempel, MD

Center Highlights

Ergonomics

Program Director: David Rempel, MD

A new tool designed to reduce the pain and fatigue of overhead drilling was developed by the NCERC Ergonomics Program with the support of workers and contractors. Electricians, plumbers, pipefitters, sheet metal, and other construction workers use heavy hand-held rotary hammer drills to bore holes in concrete or metal ceilings where anchor bolts will be placed. Workers may drill hundreds of holes at a time. As a result, overhead drilling leads to a high rate of soft tissue injuries to hands, arms, shoulders, and the back. Dr. David Rempel, the head of the Ergonomics Program, and his team partnered with contractors and labor unions to research ways to minimize such injuries. Out of this collaboration evolved the Inverted Drill Press (IDP) with a tripod base on locking wheels, a telescoping vertical column with a drill-mounting saddle on top, alignment devices, and gears and a hand wheel that extends and retracts the column.

This new device keeps workers safer by allowing them to perform all tasks from ground-level: drill target marks can be placed on the floor instead of the ceiling, and the telescoping column raises the drill up to 15 feet. Workers tested the new device compared to the old method and rated the IDP better in terms of reduced muscle fatigue, control, stability, and handling. The new device reduced force to the body by 90 percent. There was no appreciable reduction in productivity, even among first-time users. Set-up and adjustments take somewhat longer with the new device, but drilling itself is routinely faster. In addition, elimination of the need for a ladder to mark the ceiling decreases falls and a vacuum system captures silica dust.

The Hospital Patient and Health Care Worker Injury Protection Act (AB1136) mandated in 2012 that Cal/OSHA develop a regulation to require hospitals to implement an injury prevention plan which is to include a patient handling policy, lifting methods, a lift designated coordinator, and back safety training. The NCERC has been an active collaborator with Cal/OSHA in the development of this regulation. Dr. Rempel has been a consultant to Cal/OSHA about specific aspects of the proposed regulation, and NCERC Deputy Director Quinlan is a member of the California Occupational Health and Safety Standards Board that is working with Cal/OSHA to promulgate the regulation. Barbara Plog, Director of the NCERC Continuing Education Program, created a course to provide hospital health and safety managers training on AB1136 requirements that has been given several times before implementation of the proposed regulation.

Occupational and Environmental Epidemiology
Program Director: Ellen Eisen, PhD

In its third year, the occupational and environmental epidemiology program has a critical mass of students who are actively involved in the academic program of coursework and research. Dan Brown, PhD candidate, has applied g-methods to address health worker survivor effects (HWSE) in a prospective study of incident heart disease and PM 2.5 in a cohort of 16,000 ALCOA workers. His results suggest that there is excess risk of heart disease in smelter workers that was obscured by bias in the standard analysis. Stella Beckman, PhD candidate, is using indirect adjustment to address confounding by smoking in an analysis of COPD mortality in the autoworkers cohort. Erika Garcia, a first year PhD student, is assessing the feasibility of an

epidemiologic study of ergonomic and respiratory hazards in brick kiln workers in Nepal. Jennifer Ames, MS pre-doctoral student, is working on a newly funded study of glucose dysregulation in children living in Fresno, California exposed to high levels of air pollution.

Outreach

Program Director: Michael Wilson, PhD

The massive fire at the Chevron Refinery in Richmond, CA in August 2012 has prompted efforts to improve refinery worker health and safety at facilities throughout the state. Dr. Michael Wilson, Director of the NCERC Outreach Program, assumed an important leadership role in addressing refinery worker health and safety after the fire. He was instrumental in forming an innovative refinery safety collaborative that included labor unions, community-based organizations, and environmental advocacy organizations. In addition, Wilson and colleagues were commissioned to write a report for California Governor Brown's Interagency Taskforce on Refinery Safety. This report helped Cal/OSHA garner new resources to enable hiring of 15 new facility safety inspectors to enhance the agency's capacity to inspect refineries throughout the state, and led to Dr. Wilson's temporary assignment to the California Department of Industrial Relation to serve as its Chief Scientist, with a mandate to help coordinate the implementation of the enhanced refinery safety program.